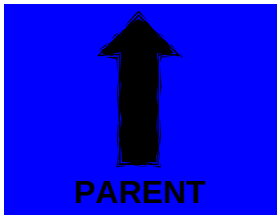

ARABESQUE DATABASE
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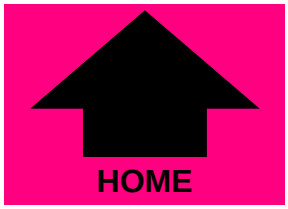

Introduction

The database data documentation is structured as a series of documents. Generally, these documents cover the data from one or more database data tables. Occasionally, a table is covered by more than one document where it contains data that map to similar data structures but are generically different.

CTD Profiles (Table BINCTD)

Vertical profiles of temperature and salinity, dissolved oxygen, chlorophyll, optical attenuance and light channels.

Light Profiles (Table PRPROF)

Vertical light profiles.

Water Bottle and Air Sample Data (Table BOTDATA)

A wide range of physical, chemical and biological parameters measured on discrete water and air samples collected using bottles and pumps (shipboard and *in situ*).

Production Data (Table OXYDAT)

Data from long (usually 24 hour) in-situ and on-deck production experiments plus data from non-parameterised P:I experiments.

Light Profiles

Introduction

The light profiles presented in the database were collected during cruise DI212. Note that additional light profiles are included in the CTD data set when light meters were included as part of the CTD package.

Sampling Protocols

Data are present for cruise Discovery 212. A Satlantic light meter measuring upwelling and downwelling irradiance at 7 SeaWiFS wavelengths in the bandwidth 400 to 700 nm, calibrated in $\mu W/cm^2/sr/nm$ was used. The instrument sampled at 1 Hz.

The light profiling instruments included integral data loggers and were lowered from the aft telescopic crane. At the same time, measurements were taken using a Biospherics MER1010 spectroradiometer above the surface to obtain water-leaving radiance. Care was taken to ensure that the ship was aligned with the stern facing into the sun whilst the light profiles were taken.

A ‘deck cell’ mounted on a spar projecting away from the spectrometer housing and clear from any shadows measured downwelling sunlight intensity at four wavelengths in order to correct both the spectroradiometer and the Satlantic data for changes in ambient light intensity during the measurements.

Production Data

Introduction

The production data tables hold the results of uptake experiments that cannot sensibly be mapped into the water bottle data table (BOTDATA) because the amount of supporting information required exceeds what can be included in an 8-byte parameter code. The detailed protocols of these experiments are given below.

Dr. Carol Robinson and Dr. Jo Dickson

Samples were collected from up to five depths between the surface and 1% light depth, using pre-dawn CTD casts.

Light and dark incubations were for 24 hours - either on-deck or *in situ*. Incubations on deck were undertaken with sealed polyethylene blue filters to simulate the *in situ* light environment. *In situ* incubations were undertaken by attaching the bottle to a free-floating rig which was deployed prior to sunrise, recovered at sunset and then placed in darkness until dawn (0600). Analysis of dissolved inorganic carbon was by coulometric titration; dissolved oxygen concentrations were analysed using the automated Winkler technique described in Williams and Jenkinson (1982).

References

Robinson , C., Williams, P.J.leB., 1991. Development and assessment of an analytical system for the accurate and continual measurement of total dissolved inorganic carbon. ***Marine Chemistry*** 34, 157-175

Williams, P.J.leB., Jenkinson, N.W. 1982. A transportable micro-processor-controlled precise Winkler titration suitable for field station and shipboard use. ***Limnology and Oceanography*** 27, 576-584